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(56) Documents Cited
GB 2248949 A GB 2097230 A GB 1576814 A
EP 0288925 A2 US 5558798 A US 5370042 A

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(54) Abstract Title
Food containers

(57) A food container (10) for use in microwave ovens comprises a receptacle (12) and an internal separator (31) which divides the receptacle into upper and lower compartments, the upper for a food product and the lower for water or a water-containing medium. The separator (31) may be a thin perforate sheet which acts as a trivet. The separator sheet (31) snaps into place beneath peripherally spaced internal lugs (28). When heated, steam is created which passes up through the separator to steam the food product. The container may be circular or generally rectangular.

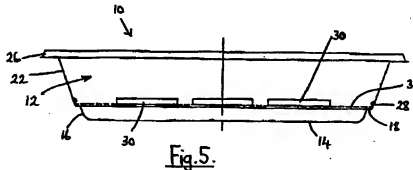


Fig. 1.

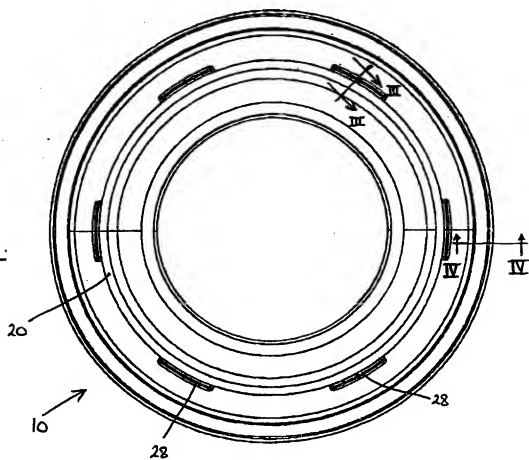
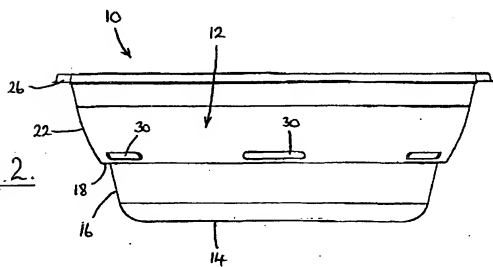
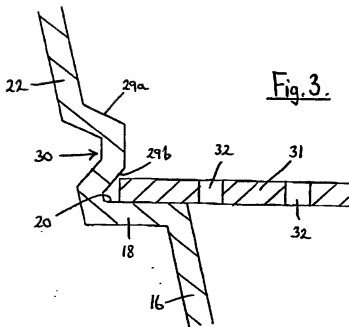
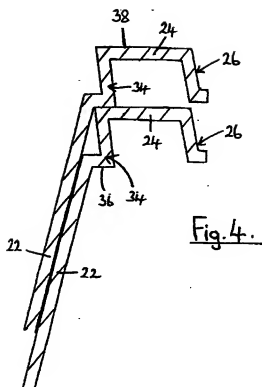


Fig. 2.





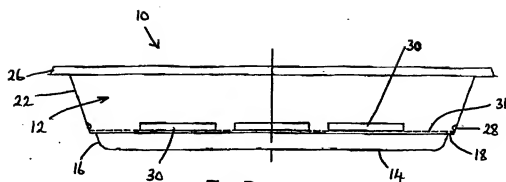
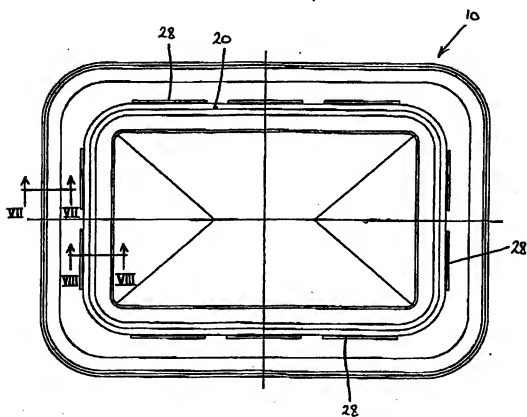
Fig. 5.Fig. 6.

Fig. 7.

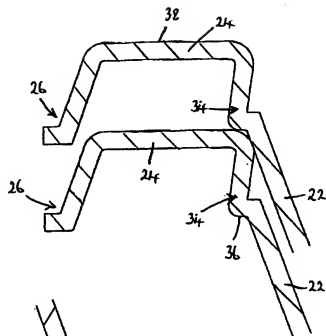
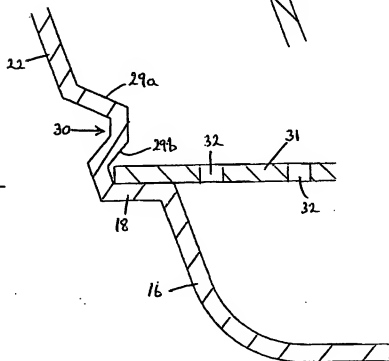


Fig. 8.



FOOD CONTAINERS

This invention relates generally to food containers, and is particularly concerned with containers for food which is intended to be cooked by the use of microwave energy.

In the re-heating or cooking of food using microwave energy, many food products benefit from the cooking or re-heating involving a steaming process. Conventionally, many microwaveable food products are packaged in bags or sachets which incorporate liquid. However, with such bags or sachets the food product and the liquid are enclosed within the same package and cooking is not by steaming.

It is an object of the present invention to provide a food container of improved design by means of which food products can be subjected to a steaming process when heated using microwave energy.

In accordance with the present invention this is achieved by a food container comprising a receptacle and a separator to divide the receptacle into two compartments, one of which is arranged to hold a food product and the other of which is arranged to hold water or a water-containing medium, with a communication path for steam from said other compartment to said one compartment.

In a preferred embodiment of the invention, the receptacle is in the form of a bowl and the separator comprises a perforate sheet which is arranged to be fitted into the bowl. The bowl can be provided for example with a plurality of peripherally spaced latching means to hold the separator in place. For example, a plurality of peripheral, inwardly projecting lugs can be provided, with the separator sheet being arranged to latch between the lugs and an

underlying support surface.

The perforate sheet is arranged to have a substantial number of holes therethrough. The number, size and distribution of these holes is a matter of choice, and may
5 depend upon the nature of the products within the container.

The provision of a latching separator is advantageous. The manufacturer of the container, which is normally a moulded plastics article, will provide separate stocks of receptacles and separators to a food manufacturer. The food manufacturer
10 can then put the water or water-containing medium into the bottom of the receptacle, latch the separator in place, fill the upper part of the receptacle with the food to be steamed, and then close the receptacle with an appropriately sealed cover.

The customer, after purchasing the product, then simply has to place the entire container within a microwave oven and heat the product in accordance with the instructions. This generates steam within the lower portion of the container, which rises through the separator into the upper chamber where
20 steaming of the food product takes place. The water or water-containing medium in the bottom of the container can be in liquid form, or alternatively be in jelly-like form. Yet again, with a removable separator, the source of vapour can be within a sachet in the bottom of the receptacle, with the
25 sachet being opened or perforated by the user prior to the microwave process. Various alternatives can be envisaged.

The liquid within the bottom of the receptacle can become a gravy or sauce to be served with the food product from the upper part of the container. The use of a perforated sheet
30 as the separator also means that if one has herbs, spices or other flavourings in the bottom part of the container then

microwave ovens. The bowl comprises a generally flat base 14 from which extends an upwardly sloping lower side wall 16. Above the side wall 16 is an outwardly extending flange 18 which defines a circumferential shelf 20 within the bowl. Above the flange 18 is an upper side wall portion 22 which terminates at the top of the bowl in an outwardly directed radial flange 24 (Fig. 4) with a turned-over edge 26.

A plurality of inwardly projecting arcuate lugs 28 are provided around the periphery of the bowl, just above the flange 18 and above the shelf 20. These lugs 28 are generally triangular in vertical cross-section, as shown in Fig. 3, so that on the inside of the bowl they each have a downwardly sloping upper surface 29a and an upwardly sloping lower surface 29b. Between each lug 28 and the shelf 20 is a gap. On the outside of the bowl there are peripheral indentations 30 at the location of each of the internal lugs 28.

Within the bowl 12 is positioned a separator which is indicated generally at 31 (Fig. 3) and which is here in the form of a thin disk or plate of plastics material which is arranged to function as a trivet within the bowl. The separator plate 31 is provided with a plurality of circular holes 32 therethrough. The number, size and position of these holes 32 is a matter of choice. They need not be circular; they could have some alternative configuration. The diameter of the circular plate 31 is such that it will latch into place beneath the lugs 28, thereby resting on the supporting shelf 20. Preferably, the plate 31 "snaps" into place beneath the lugs 28 with a latching action. This divides the bowl into upper and lower compartments.

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The separator plate 31 can either be removable or be fixed

permanently in place. If removable, it preferably has a finger hole (not shown) which the user can use to withdraw it from its latched position.

Fig. 4 shows how the rim of the container is shaped to permit stacking of the containers without them sticking together. The upper end of the upper side wall portion 22 is provided with a peripheral indentation 34 which creates a horizontal surface 36 which seats against the flat upper surface 38 of the flange 24 when two or more containers are stacked. The rims 26 of the containers are thus spaced, and can easily be gripped and the containers separated. They are nested without full surface-to-surface contact.

Figs. 5 to 8 show a rectangular food container in which the same or corresponding parts to those of the first embodiment are given the respective same reference numerals.

In this second embodiment the peripheral lugs 28 are provided in opposing relationship on respective opposite sides of the tray or bowl. The separator or trivet 31 is here rectangular to match the shape of the tray.

CLAIMS:

1. A food container comprising a receptacle and a separator to divide the receptacle into two compartments, one of which is arranged to hold a food product and the other of which is arranged to hold water or a water-containing medium, with a communication path for steam from said other compartment to said one compartment.
2. A food container as claimed in claim 1, in which the separator comprises a perforate sheet which is arranged to be fitted into the receptacle.
3. A food container as claimed in claim 1 or 2, in which the receptacle has a plurality of peripherally spaced latching means to hold the separator in place.
4. A food container as claimed in claim 3, in which the latching means comprises a plurality of inwardly projecting lugs, and the receptacle has an internal circumferential support surface on which the separator rests latched between the lugs and the support surface.
5. A food container as claimed in claim 4, in which each of said lugs has a downwardly sloping upper surface and an upwardly sloping lower surface.
6. A food container as claimed in claim 5, in which the internal lugs are defined by external indentations in the material of the receptacle.
7. A food container as claimed in any preceding claim, in which the separator comprises a circular disc having a plurality of holes therethrough.
8. A food container as claimed in any preceding claim, in which the receptacle has a rim shaped to enable two or more of the receptacles to be nested without full surface-to-

surface contact.

9. A food container substantially as hereinbefore described with reference to the accompanying drawings.

Amendments to the claims have been filed as follows

1. A food container comprising a receptacle and a separator to divide the receptacle into two compartments, one
5 of which is arranged to hold a food product and the other of which is arranged to hold water or a water-containing medium, with a communication path for steam from said other compartment to said one compartment, wherein the separator is arranged to be latched into place within the receptacle.
- 10 2. A food container as claimed in claim 1, in which the separator comprises a perforate sheet.
3. A food container as claimed in claim 1 or 2, in which the receptacle has a plurality of peripherally spaced latching means to hold the separator in place.
- 15 4. A food container as claimed in claim 3, in which the latching means comprises a plurality of inwardly projecting lugs, and the receptacle has an internal circumferential support surface on which the separator rests latched between the lugs and the support surface.
- 20 5. A food container as claimed in claim 4, in which each of said lugs has a downwardly sloping upper surface and an upwardly sloping lower surface.
6. A food container as claimed in claim 5, in which the internal lugs are defined by external indentations in the
25 material of the receptacle.
7. A food container as claimed in any preceding claim, in which the separator comprises a circular disc having a plurality of holes therethrough.
8. A food container as claimed in any preceding claim,
30 in which the receptacle has a rim shaped to enable two or more of the receptacles to be nested without full surface-to-

surface contact.

9. A food container as claimed in any preceding claim, in which both the receptacle and the separator are of plastics material permeable to microwave radiation.

5 10. A food container substantially as hereinbefore described with reference to the accompanying drawings.



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Claims searched: 1 to 9

Examiner: Mike Henderson
Date of search: 12 November 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): A4A (AD) B8P (PAX PE2J) H5H (HMK)

Int Cl (Ed.6): A47J 27/04 36/02

Other: ONLINE:WPI

Documents considered to be relevant:

| Category | Identity of document and relevant passage | Relevant to claims |
|----------|--|--------------------|
| X | GB 2246949A (K K TOSHIBA) (Whole disclosure relevant) | 1,2,7 & 8 |
| X | GB 2097230A (RAYTHEON CO) (Figs 1-5 & corresponding description particularly relevant) | 1,2,7 & 8 |
| X | GB 1576814 (WALLSTEN) (Figs 3 & 4 & corresponding description particularly relevant) | 1,2 & 7 |
| X | EP 0288926A2 (NEUMÜLLER) (All Figs relevant) | 1,2 & 7 |
| X | US 5556798 ((TSAI) (Figs 1-9 & corresponding description particularly relevant) | 1,2,7 & 8 |
| X | US 5370042 (TOLCHIN et al) (Fig.2 & corresponding description particularly relevant) | 1 & 8 |

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these will effectively be strained off by the perforate sheet when the liquid is poured from the container by the end user after cooking.

In order that the invention may be more fully understood, 5 two presently preferred embodiments of food container in accordance with the invention will now be described by way of example and with reference to the accompanying drawings. In the drawings:

Fig. 1 is a plan view of a first embodiment of food 10 container but without its separator;

Fig. 2 is a side view of the food container of Fig. 1;

Fig. 3 is a sectional view, on an enlarged scale, taken along the line III-III in Fig. 1, with the separator in place;

Fig. 4 is a sectional view, on an enlarged scale, taken 15 along the line IV-IV in Fig. 1, to illustrate stacking of the containers;

Fig. 5 is a side view of a second embodiment of food container, with the separator and food contents shown schematically;

20 Fig. 6 is a plan view of the food container of Fig. 5, but without its separator;

Fig. 7 is a sectional view, on an enlarged scale, taken along the line VII-VII in Fig. 6, to illustrate stacking of the containers; and,

25 Fig. 8 is a sectional view, on an enlarged scale, taken along the line VIII-VIII in Fig. 6, with the separator in place.

Referring to Figs. 1 to 4 of the drawings, there is shown a food container 10 which comprises a receptacle in the form 30 of a bowl 12. The bowl is preferably moulded from an appropriate plastics material which is suitable for use in